Complete Summary

GUIDELINE TITLE

Practice management guidelines for the diagnosis and management of injury in the pregnant patient: the EAST Practice Management Guidelines Work Group.

BIBLIOGRAPHIC SOURCE(S)

Eastern Association for the Surgery of Trauma (EAST). Practice management guidelines for the diagnosis and management of injury in the pregnant patient: the EAST Practice Management Guidelines Work Group. Charleston (SC): Eastern Association for the Surgery of Trauma (EAST); 2005. 18 p. [76 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Trauma during pregnancy

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management

CLINICAL SPECIALTY

Critical Care
Emergency Medicine
Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To provide recommendations for the diagnosis, evaluation, and management of traumatic injury in the pregnant patient

TARGET POPULATION

Pregnant women who have been injured

INTERVENTIONS AND PRACTICES CONSIDERED

1. Cardiographic monitoring for a minimum of 6 hours
2. Kleihauer-Betke analysis
3. Beta-human chorionic gonadotropin (beta-HCG) testing (if trauma was significant)
4. Shielded x-rays
5. Ultrasonography
6. Magnetic resonance imaging (MRI) (Note: MRI is not recommended for use in the first trimester)
7. Radiologist consultation when calculating estimated fetal dose of x-ray exposure
8. Perimortem cesarean section
9. Keep patient tilted left side down 15 degrees
10. Obstetric consultation

MAJOR OUTCOMES CONSIDERED

- Accuracy of diagnostic tests
- Morbidity and mortality of the pregnant patient and her fetus

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

An initial computerized search was undertaken using Medline with citations published between the years 1966 and 2003. Search words included "pregnancy", "radiography" and the MesH term for trauma, "Wounds and Injuries". Papers were limited to human and English language. Over 1,600 papers were screened. In addition, bibliographies of book chapters and reviews were examined for any additional references. No time limit was imposed on the literature in order to acquire adequate data. Due to concerns about the availability of literature concerning these areas, studies were not excluded initially based on number of subjects. Isolated case reports were excluded. A total of 76 references are contained in the evidentiary table. Two position statements were also included.

NUMBER OF SOURCE DOCUMENTS

76 references are contained in the evidentiary table

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Class I

Prospective randomized controlled trials

Class II

Clinical studies in which data was collected prospectively and retrospective analyses that were based on clearly reliable data. Types of studies so classified include observational studies, cohort studies, prevalence studies and case control studies.

Class III

Studies based on retrospectively collected data, i.e. clinical series, database or registry review, larger series of case reviews and expert opinion.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The references were reviewed by a trauma surgeon or obstetrician and classified according to the standards outlined in "Rating Scheme for the Strength of the Evidence." Data from each article was extracted using a data extraction form and placed in a table. Conclusions of each article were critiqued and a determination made regarding consistency of the conclusion and data.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Level 1

The recommendation is convincingly justifiable based on the available scientific information alone. This recommendation is usually based on Class I data, however, strong Class II evidence may form the basis for a Level I recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, low quality or contradictory Class I data may not be able to support a Level I recommendation.

Level 2

The recommendation is reasonably justifiable by available scientific evidence and strongly supported by expert opinion. This recommendation is usually supported by Class II data or a preponderance of Class III evidence.

Level 3

The recommendation is supported by available data but adequate scientific evidence is lacking. This recommendation is generally supported by Class III data. This type of recommendation is useful for educational purposes and in guiding future clinical research.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The draft document is submitted to all members of the panel for review and modification. Subsequent to this the guidelines are forwarded to the chairman of the Eastern Association for the Surgery of Trauma (EAST) ad hoc committee for guideline development. Final modifications are made and the document forwarded back to the individual panel chairpersons.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of recommendation (1-3) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

Level 1

1. There are no Level 1 standards.

Level 2

1. All pregnant women >20 weeks' gestation who suffer trauma should have cardiotocographic monitoring for a minimum of 6 hours. Monitoring should be continued and further evaluation should be carried out if uterine contractions, a nonreassuring fetal heart rate pattern, vaginal bleeding, significant uterine tenderness or irritability, serious maternal injury or rupture of the amniotic membranes is present.
2. Kleihauer-Betke analysis should be performed in all pregnant patients >12 weeks' gestation.

Level 3

1. The best initial treatment for the fetus is the provision of optimum resuscitation of the mother and the early assessment of the fetus.
2. All female patients of childbearing age with significant trauma should have a beta-human chorionic gonadotropin (beta-HCG) performed and be shielded for x-rays whenever possible.
3. Concern about possible effects of high-dose ionizing radiation exposure should not prevent medically indicated maternal diagnostic x-ray procedures from being performed. During pregnancy, other imaging procedures not associated with ionizing radiation should be considered instead of x-rays when possible.
4. Exposure to less than 5 rad has not been associated with an increase in fetal anomalies or pregnancy loss and is herein deemed to be safe at any point during the entirety of gestation.
5. Ultrasonography and magnetic resonance imaging (MRI) are not associated with known adverse fetal effects. However, until more information is available, magnetic resonance imaging is not recommended for use in the first trimester.
6. Consultation with a radiologist should be considered for purposes of calculating estimated fetal dose when multiple diagnostic x-rays are performed.
7. Perimortem Cesarean section should be considered in any moribund pregnant woman of $\geq$24 weeks gestation.
8. Delivery in perimortem cesarean sections must occur within 20 minutes of maternal death but should ideally start within 4 minutes of the maternal arrest. Fetal neurological outcome is related to delivery time after maternal death.

9. Consider keeping the pregnant patient tilted left side down 15 degrees to keep the pregnant uterus off the vena cava and prevent supine hypotension syndrome.
10. Obstetric consult should be considered in all cases of injury in pregnant patients.

Definitions:

Rating Scheme for Strength of Recommendations

Level 1

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Rating Scheme for Strength of Evidence

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Class III

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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis of injury to the pregnancy patient

POTENTIAL HARMS

- The fetus is most at risk for central nervous system effects of radiation exposure from 8-15 weeks and the threshold appears to be at least 20 to 40 rad.
- Several studies have suggested variable increased risk of childhood leukemia above baseline with "low level radiation".

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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the EAST Practice Management Guidelines Work Group. Charleston (SC): Eastern Association for the Surgery of Trauma (EAST); 2005. 18 p. [76 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Jun

GUIDELINE DEVELOPER(S)

Eastern Association for the Surgery of Trauma - Professional Association

SOURCE(S) OF FUNDING

Eastern Association for the Surgery of Trauma (EAST)

GUIDELINE COMMITTEE

EAST Practice Management Guidelines Work Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group Members: Robert D. Barraco, MD, MPH (Trauma); William C. Chiu, MD (Trauma); Thomas V. Clancy, MD (Trauma); John J. Como, MD (Trauma); James B. Ebert, MD (Trauma); L. Wayne Hess, MD (Obstetrics and Gynecology); William S. Hoff, MD (Trauma); Michele R. Holevar, MD (Trauma); J. Gerald Quirk, MD, PhD (Obstetrics and Gynecology); Bruce J. Simon, MD (Trauma); Patrice M. Weiss, MD (Obstetrics and Gynecology)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

Print copies: Available from Robert D. Barraco, MD, MPH, FACS, FCCP, Lehigh Valley Hospital and Health Network, Department of Surgery, Cedar Crest & I-78, P.O. Box 689, Allentown, PA 18105-1556; Phone: 610-402-1296; Email: Robert_D.Barraco@lvh.com

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Utilizing evidence based outcome measures to develop practice management guidelines: a primer. 18 p. 2000. Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on February 27, 2006.

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DISCLAIMER

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